

**CLAIMS**

- 1       An electrochemical gas sensor comprising:  
          a working electrode comprising a gas porous membrane and a catalyst  
5       layer formed on one side of the membrane;  
          a counter electrode comprising a catalyst;  
          electrolyte in contact with the catalyst both of the working electrode and  
of the counter electrode; and  
          a rigid or semi-rigid support that is in contact with, and presses down  
10       on, the side of the working electrode remote from the electrolyte and that  
compresses the electrodes and the electrolyte together, such support having a  
thickness of not greater than 0.5mm and wherein the support includes open  
areas allowing gas to contact the membrane, the surface area of the support  
between the open areas being less than 40% of the combined surface area of the  
15       open areas and the supports between them.
- 2       A sensor as claimed in claim 1, wherein the support, between the open  
areas, is in the form of solid regions, e.g. narrow bars, having a width of not  
greater than 0.5mm, more preferably less than 0.3mm, e.g. less than 0.2mm.
- 20       3       An electrochemical gas sensor comprising:  
          a working electrode comprising a gas porous membrane and a catalyst  
layer formed on one side of the membrane;  
          a counter electrode comprising a catalyst;  
          electrolyte in contact with the catalyst both of the working electrode and  
25       of the counter electrode; and  
          a rigid or semi-rigid support that is in contact with, and presses down  
on, the side of the working electrode remote from the electrolyte and that  
compresses the electrodes and the electrolyte together,, such support  
comprising open areas that allow gas to contact the membrane and solid

regions located between the open areas for contacting and supporting the membrane, such solid regions having a width of not greater than 0.5mm, more preferably less than 0.3mm, e.g. less than 0.2mm, and wherein the aggregate surface area of the solid regions is less than 40% of the combined surface area of the support, including the open areas.

4 An electrochemical gas sensor of claim 3, wherein the solid regions have a width of less than 0.3mm, e.g. less than 0.2mm.

5 An electrochemical gas sensor as claimed in any preceding claim wherein the support has a thickness of not greater than 0.5mm, preferably less than 0.4mm, more preferably less than 0.3mm, e.g. less than 0.2mm

6 An electrochemical gas sensor as claimed in any preceding claim, wherein the regions of the support between the open areas are in the form of bars.

7 A sensor as claimed in any preceding claim, wherein the surface area of the support between the open areas is less than 30%, e.g. less than 20% and most preferably less than 10% of the surface area of the support.

8 A sensor as claimed in any preceding claim, which includes a reference electrode.

9 A sensor as claimed in any preceding claim, wherein the support is metallic.

10 A sensor as claimed in any preceding claim, wherein the open areas of the support are formed into a pattern, most preferably a rectangular or hexagonal pattern.

11 A sensor as claimed in any preceding claim, which includes a housing and wherein the support includes a rim that comprises material that is fused or welded to the housing.